

CLAIM AMENDMENTS

1. (previously amended) A complex comprising (a) a virion having a surface and a lumen and comprising viral capsid proteins, (b) at least one non-native ligand displayed on the surface, which at least one ligand recognizes an epitope present on an immune effector cell, (c) at least one first nucleic acid encoding at least one first non-native antigen, and (d) at least one non-native second antigen displayed on the surface.

2. (original) The complex of claim 1, wherein at least one ligand recognizes a protein on an antigen presenting cell.

3. (original) The complex of claim 1, wherein at least one ligand recognizes CD-40.

4. (original) The complex of claim 1, wherein at least one ligand comprises an RGD motif or three or more tandem lysine and/or histidine residues.

5. (original) The complex of claim 1, wherein an antigen is a gene product from a pathogen or a malignant cell.

Cont'd. 6. (original) The complex of claim 1, wherein an antigen is a synthetic polypeptide having from about 1 to about 15 antigenic domains.

7. (canceled)

7 ~~8~~. (previously amended) The complex of claim 1, wherein at least one first antigen is the same as at least one second antigen.

8 ~~9~~. (previously amended) The complex of claim 1, wherein the virion comprises at least one chimeric protein comprising at least one first domain derived from a viral capsid protein and at least one second domain comprising at least one second antigen or at least one ligand.

9 ~~10~~. (original) The complex of claim 1, further comprising a liposome.

10 ~~11~~. (original) The complex of claim 1, wherein the virion is non-enveloped.

11 ~~12~~. (original) The complex of claim 1, wherein the virion elicits less virion-specific immunogenicity in a host animal than does a corresponding wild-type virion.

12 ~~13~~. (original) The complex of claim 1, wherein the virion comprises an adenoviral capsid.

13 ~~14~~. (original) The complex of claim 1, wherein the first nucleic acid comprises a viral genome.

14 ~~15~~. (original) The complex of claim 1, wherein the nucleic acid is expressed in an immune effector cell.

15 ~~16~~. (original) The complex of claim 1, further comprising at least one second nucleic acid sequence encoding at least one polypeptide that activates an immune effector cell.

20 ~~17~~. (original) The complex of claim ¹⁹~~16~~, wherein at least one polypeptide comprises a domain derived from CD40-L or osteopontin.

21 ~~18~~. (original) The complex of claim ¹⁹~~16~~, wherein at least one polypeptide is a cytokine.

24 ~~19~~. (original) A method of inoculating a mammal, the method comprising introducing the complex of claim 1 into a mammal under conditions sufficient for the mammal to mount an immune response to at least one first non-native antigen.

20. (canceled)

25 ~~21~~. (currently amended) The method of claim ²⁴~~19~~, wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-I response within the immune effector cell.

24 ~~22~~. (currently amended) The method of claim ²⁴~~19~~, wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-II response within the immune effector cell.

²⁴
~~27~~ 23. (original) The method of claim ~~19~~²⁴, wherein the complex comprises at least one second nucleic acid sequence encoding at least one polypeptide that activates an immune effector cell, which is expressed within the mammal under conditions sufficient to activate the immune effector cell.

²¹
~~28~~ 24. (previously amended) The method of claim ~~23~~²¹, wherein the polypeptide comprises a domain derived from CD40-L or osteopontin.

²¹
~~29~~ 25. (previously amended) The method of claim ~~23~~²¹, wherein the polypeptide is a cytokine.

~~32~~ 26. (previously amended) A method of immunizing a mammal, the method comprising introducing a complex comprising (a) a virion having a surface and a lumen and comprising viral capsid proteins, (b) at least one first nucleic acid encoding at least one first non-native antigen, and (c) at least one second non-native antigen displayed on the surface into a mammal under conditions sufficient for the mammal to mount at least one immune response to at least one of the antigens.

³²
~~33~~ 27. (original) The method of claim ~~26~~³², wherein the complex further comprises at least one non-native ligand displayed on the surface, which recognizes an epitope present on an immune effector cell.

³²
~~34~~ 28. (currently amended) The method of claim ~~26~~³², wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-1 MHC-I response within the immune effector cell.

³²
~~35~~ 29. (currently amended) The method of claim ~~26~~³², wherein the mammal comprises an immune effector cell, and wherein at least one immune response comprises an MCH-2 MHC-II response within the immune effector cell.

³²
~~36~~ 30. (original) The method of claim ~~26~~³², wherein the complex comprises at least one second nucleic acid sequence encoding at least one polypeptide that activates an immune effector cell, which is expressed within the mammal under conditions sufficient to activate the immune effector cell.

³⁶
~~37~~ ³⁶ 31. (previously amended) The method of claim ~~30~~, wherein at least one polypeptide comprises a domain derived from CD40-L or osteopontin.

³⁶
~~38~~ ³⁶ 32. (previously amended) The method of claim ~~30~~, wherein the polypeptide is a cytokine.

33.-39. (canceled)

¹⁵ ~~40~~ 40. (previously amended) A pharmaceutical composition comprising (a) the complex of claim 1, and (b) a physiologically-acceptable carrier.

41.-42. (canceled)

¹⁵
¹⁶ ~~43~~ 43. (original) The pharmaceutical composition of claim ~~40~~, wherein the complex comprises at least one second nucleic acid sequence encoding a polypeptide that activates an immune effector cell.

¹⁶
¹⁷ ~~44~~ 44. (previously added) The pharmaceutical composition of claim ~~43~~, wherein at least one polypeptide comprises a domain derived from CD40-L or osteopontin.

¹⁶
¹⁸ ~~45~~ 45. (previously added) The pharmaceutical composition of claim ~~43~~, wherein the polypeptide is a cytokine.

¹⁹
²² ~~46~~ 46. (previously added) The complex of claim ~~16~~, wherein at least one polypeptide is CD40-L.

¹⁹
²³ ~~47~~ 47. (previously added) The complex of claim ~~16~~, wherein at least one polypeptide is osteopontin.

²⁷
³⁰ ~~48~~ 48. (previously added) The method of claim ~~23~~, wherein at least one polypeptide is CD40-L.

²⁷
³¹ ~~49~~ 49. (previously added) The method of claim ~~23~~, wherein at least one polypeptide is osteopontin.

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³⁶
39 ~~50~~. (previously added) The method of claim ~~30~~³⁶, wherein at least one polypeptide is CD40-L.

³⁶
40 ~~51~~. (previously added) The method of claim ~~30~~³⁶, wherein at least one polypeptide is osteopontin.

41 ~~52~~. (new) A complex comprising (a) a virion having a surface and a lumen and comprising viral capsid proteins, (b) at least one first nucleic acid encoding at least one first non-native antigen, and (c) at least one non-native second antigen displayed on the surface.

42 ~~53~~. (new) A method of immunizing a mammal, the method comprising introducing the complex of claim ~~52~~⁴¹ into a mammal such that the mammal mounts an MHC-I immune response against the first non-native antigen and an MHC-II immune response against the second non-native antigen.

43 ~~54~~. (new) A pharmaceutical composition comprising (a) the complex of claim ~~52~~⁴¹, and (b) a physiologically-acceptable carrier.

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Concluded.